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08/462,355	06/05/1995	ROGER COLEMAN	PF-0040-US	7494

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EXAMINER
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ULM, JOHN D

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 24

Application Number: 08/462,355

Filing Date: 05 June 1995

Appellant(s): Coleman et al.

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Susan K. Sather

For Appellant

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**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 07 October 2002.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

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**(5) Summary of Invention**

The summary of invention contained in the brief is deficient because it essentially presents arguments in traversal of the rejections of record. The instant invention, as claimed, is an isolated polynucleotide encoding the amino acid sequence presented in SEQ ID NO:2 of the instant application. The amino acid sequence recited in the claims corresponds to the sequence of a naturally occurring human protein which is believed to be a member of the G protein-coupled receptor family because that amino acid sequence indicates the presence of structural features which define the members of that family. The most closely related protein that is described in the prior art is a receptor of dog origin which is a receptor for the complement component C5a, for which a human homolog is also described in the prior art. Neither a precise physiological role nor a ligand for a receptor comprising the amino acid sequence presented in SEQ ID NO:2 is disclosed in the instant specification.

**(6) Issues**

The appellant's statement of the issues in the brief is correct.

**(7) Grouping of Claims**

The rejection of claims 12 to 17 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

**(8) ClaimsAppealed**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) Prior Art of Record**

No prior art is relied upon by the examiner in the rejection of the claims under appeal.

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**(10) *Grounds of Rejection***

The following ground(s) of rejection are applicable to the appealed claims:

Claims 12 to 17 are rejected under 35 U.S.C. § 101 because they are drawn to an invention with no apparent or disclosed specific and substantial credible utility. The instant application has provided a description of an isolated DNA encoding a protein identified therein as a "C5a-like" receptor homolog, and the protein encoded thereby. There is neither evidence of record nor an assertion in the instant specification that the protein encoded by the claimed nucleic acid is a receptor for C5a. The instant application does not disclose a specific biological role for this protein or its significance to a particular disease, disorder or physiological process which one would wish to manipulate for a desired clinical effect.

It is clear from the instant specification that the receptor protein described therein as "CALR" is what is termed an "orphan receptor" in the art. This is a protein whose cDNA has been isolated because of its similarity to known proteins. There is little doubt that, after complete characterization, this protein and an isolated nucleic acid encoding it may be found to have a specific and substantial credible utility. This further characterization, however, is part of the act of invention and until it has been undertaken Appellant's claimed invention is incomplete. The instant situation is directly analogous to that which was addressed in *Brenner v. Manson*, 148 U.S.P.Q. 689 (Sus. Ct, 1966), in which a novel compound which was structurally analogous to other compounds which were known to possess anti-cancer activity was alleged to be potentially useful as an anti-tumor agent in the absence of evidence supporting this utility. The court expressed the opinion that all chemical compounds are "useful" to the chemical arts when this term is given its broadest interpretation. However, the court held that this broad interpretation was not the intended definition of "useful" as it appears

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in 35 U.S.C. § 101, which requires that an invention must have either an immediately obvious or fully disclosed "real world" utility. The court held that:

"The basic quid pro quo contemplated by the Constitution and the Congress for granting a patent monopoly is the benefit derived by the public from an invention with substantial utility", " [u]nless and until a process is refined and developed to this point-where specific benefit exists in currently available form-there is insufficient justification for permitting an applicant to engross what may prove to be a broad field", and "a patent is not a hunting license", " [i]t is not a reward for the search, but compensation for its successful conclusion."

The instant claims are drawn to an isolated nucleic acid defined sole by the fact that it encodes a protein, which, as yet, is of undetermined function or biological significance. There is absolutely no evidence of record or any line of reasoning that would support a conclusion the a protein of the instant invention is associated in any way with the plurality of causally unrelated disorders that are listed on page 6 of the instant specification. Further, the assertion that CALR is a complement receptor does not constitute a specific assertion because the complement cascade consists of a plurality of different proteins that interact with a plurality of different receptors through which they induce a multitude of different physiological responses. The particular component of the complement cascade which binds to and activates the CALR protein of the instant invention, and physiological consequences of this binding, are not disclosed in the instant specification and can not be predicted from the facts of record. Until some actual and specific significance can be attributed to the protein identified in the specification as CALR, or the gene encoding it, the instant invention is incomplete. The protein encoded by a DNA of the instant invention is a compound known to be structurally analogous to proteins which are known in the art as G

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protein-coupled receptors. The probability that this protein is a G protein-coupled receptor and, possibility, a receptor for a component of the complement cascade has not been disputed. However, in the absence of a knowledge of the natural ligands or biological significance of this protein, there is no immediately obvious specific, substantial and practical use for it. To employ a protein of the instant invention in the identification of substances which inhibit or induce its activity is clearly to use it as the object of further research which has been determined by the courts to be a utility which, alone, does not support patentability. Since the instant specification does not disclose a credible, specific and substantial "real world" use for CALR or an isolated nucleic acid encoding it the claimed invention is incomplete and, therefore, does not meet the requirements of 35 U.S.C. § 101 as being useful.

Claims 12 to 17 are rejected under 35 U.S.C. § 112, first paragraph, as failing to adequately teach how to use the instant invention for those reasons given above with regard to the rejection of these claims under 35 U.S.C. § 101.

***(11) Response to Argument***

Appellant argues that the claimed polynucleotides encode proteins which are useful as tools for toxicology testing, drug discovery, and the diagnosis of disease and that these uses are "well-established" and "specific". It is noted that toxicology testing and drug discovery are not specifically recited in the specification as originally filed. Each of the alleged uses in toxicology testing, drug discovery, and the diagnosis of disease will be addressed individually, because the facts and issues directed to each use are distinct and separable.

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First, Appellant argues that toxicology testing is a well-established utility and concludes that any naturally occurring polypeptide, including those polypeptides which are bound by the antibodies encompassed by the instant claims, could be used in this manner and that the claimed invention possesses specific and substantial utility in this capacity. However, for a utility to be "well-established" it must be specific, substantial and credible. In this case, as conceded by Appellant, all naturally occurring polypeptides are in some combination useful in toxicology testing. It is noted that the particulars of toxicology testing with SEQ ID NO:2 are not disclosed in the instant specification. Neither the toxic substances nor the susceptible organ systems are identified. Further, Applicant has failed to identify the consequences of identifying a compound which is toxic to a polypeptide encoded by the claimed polynucleotide. It is well known that excessive concentrations of common compounds such as sodium chloride and ethanol are toxic to humans. Appellant has not disclosed the practical benefit of determining the toxic (denaturing) concentration of a compound such as sodium chloride or ethanol on a polypeptide encoded by a polynucleotide of the instant invention. If one does not know the effects that the denaturation of a protein of the instant invention will have on an individual then a knowledge of the minimal concentration of sodium chloride or ethanol which is required to denature that protein is of no immediate practical benefit. Toxicology testing is a general utility which would apply to virtually every member of a general class of materials, such as any collection of proteins or DNAs, but, it is not a specific utility with respect to SEQ ID NO:2 because the consequences of denaturing that particular protein are not disclosed, and toxicology testing does not constitute a "well-established" utility.

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Appellant urges that the claimed polynucleotides can be employed in a disease diagnostic process. Because any potential diagnostic utility is not yet known and has not yet been disclosed, the utility is not substantial because it is not currently available in practical form. The instant specification does not identify even a single disease or disorder with which a protein comprising the amino acid sequence of SEQ ID NO:2 has been credibly associated. The fact that the cDNA encoding CALR was isolated from a cDNA library prepared from the peripheral blood of a patient suffering from mast cell leukemia does not support a conclusion of a causal or diagnostic association between CALR and mast cell leukemia because literally thousands of different proteins would have been encoded by the cDNAs produced from such a library. Moreover, use of the claimed polynucleotide in an array for toxicology screening is only useful in the sense that the information that is gained from the array is dependent on the pattern derived from the array, and says nothing with regard to each individual member of the array. Again, this is a utility which would apply to virtually every member of a general class of materials, such as any collection of proteins or DNAs. Even if the expression of Appellant's individual protein is affected by a test compound in an array for drug screening, the specification does not disclose any specific and substantial interpretation for the result, and none is known in the art. Given this consideration, the individually claimed antibody has no "well-established" use. The artisan is required to perform substantial further experimentation on the claimed material itself in order to determine to what "practical use" any expression information regarding this polynucleotide could be put.

The employment of a protein of the instant invention, or a polynucleotide which encodes that protein, in toxicology testing is not a substantial and specific utility. As conceded by

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Appellant, all human proteins can be employed in such a process irrespective of their normal function. Such utilities are analogous to the assertion that a particular protein can be employed as a molecular weight marker, which is neither a specific or substantial utility.

One could just as readily argue that any purified compound having a known structure, such as the steroid compound which was the subject of the *Brenner v. Manson* decision cited above, could be employed as an analytical standard in such processes as nuclear magnetic resonance (NMR), infrared spectroscopy (IR), and mass spectroscopy as well as in polyacrylamide gel electrophoresis (PAGE), high performance liquid chromatography (HPLC) and gas chromatography. None of these important processes could be practiced without either calibration standards having known molecular structures or, at least, a range of molecular weight markers having known molecular weights. One could further extrapolate upon this premise by asserting that any item having a fixed measurable parameter can be employed to calibrate any machine or process which measures that parameter. For example, any item having a constant mass within an acceptable range can be employed to calibrate a produce scale in a grocery store. The calibration of produce scales is certainly an important function since most states require produce scales to be calibrated and certified. Therefore, to accept Applicant's arguments that any nucleic acid encoding any protein of human origin is useful in a toxicology test would be comparable to conceding that any object of fixed mass has *prima facie* utility as a weight standard, irrespective of any other properties possessed by that object. It was just such applications that the court appeared to be referring to when it expressed the opinion that all

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chemical compounds are "useful" to the chemical arts when this term is given its broadest interpretation (*Brenner v. Manson*, 148 U.S.P.Q. 689 (Sus. Ct, 1966)). Because the steroid compound which was the subject of that decision had a known structure and molecular weight it could have readily been employed as a molecular standard at that time. Further, because that compound was a hydrocarbon it certainly could have been employed in the well known process of combustion for purposes of lighting and/ or the generation of heat. The generation of heat by combustion of hydrocarbons certainly was and remains an important process. Irrespective of such obvious utilities, the court still held that the compound produced by the process at issue in *Brenner v. Manson* did not have a specific and substantial utility.

To grant Appellant a patent encompassing a polynucleotide which encodes a naturally occurring human protein of as yet undetermined biological significance based upon Applicant's assertion that any human protein is useful in toxicology testing would be to grant Appellant a monopoly "the metes and bounds" of which "are not capable of precise delineation". That monopoly "may engross a vast, unknown, and perhaps unknowable area" and "confer power to block off whole areas of scientific development, without compensating benefit to the public" (*Brenner v. Manson, Ibid*). To grant Appellant a patent on the claimed polynucleotide based solely upon an assertion that the protein encoded thereby can be employed in toxicology testing is clearly prohibited by this judicial precedent since the compensation to the public is not commensurate with the monopoly granted and would be no different than granting a patent on the

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process disputed in *Brenner v. Manson* on the premise that the steroid produced thereby was useful as an analytical standard or as a combustible fuel source.

Appellant's reliance on *In re Brana*, 51 F.3d 1560, 1566, 34 USPQ2d 1436, 1441 (Fed. Cir. 1995) is misplaced. That court decision determined that a compound which belonged to a family of compounds known to have anti-tumor activity, which is a common and well established specific and substantial utility for that family of compounds, would be reasonably expected to have anti-tumor activity in light of positive *in vitro* data with respect to that particular compound since that data has proven to be an indicator of anti-cancer activity by other members of that family. The protein of the instant invention does not belong to a family of compounds with a **common** well established specific and substantial utility. The utility of those members of the G protein-coupled receptor family to which the protein encoded by the claimed nucleic acid belongs lies in the knowledge that each of those particular receptors modulates a specific physiological activity in response to a specific ligand. Since the instant specification does not credibly disclose the identity of a specific native ligand for the protein encoded by the isolate nucleic acid of the instant invention, the disclosure of the fact that a protein of the instant invention is a member of the G protein-coupled receptor family is not particularly useful.

Applicant's arguments that the "REVISED INTERIM UTILITY GUIDELINES TRAINING MATERIALS" "Misstate the Law" will not be answered by the examiner. The contents of 35 U.S.C., 37 C.F.R., judicial decisions, and guidelines established by the USPTO are not subject to examiner review and will not be questioned or defended by the examiner. These

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are decisions made by legally empowered government entities to which the examiner is subordinate and those decisions will be followed without question by the examining corps. For the above reasons, it is believed that the rejections should be sustained.

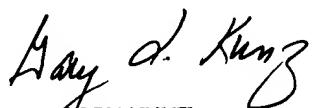
Respectfully submitted,



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December 6, 2001

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